and an electronic component unit or module of, for example, a semiconductor device in which the IC chip is mounted on the board by the mounting method, according to an eighteenth embodiment of the present invention will be described next with reference to Fig. 43A through Fig. 43C and Fig. 44A through Fig. 44F.

According to this eighteenth embodiment, instead of sticking the thermosetting resin sheet 6 to the board 4 as in the sixteenth embodiment, a thermosetting adhesive 306b that has a liquid form and serves as one example of the insulating resin layer is applied or printed or transferred onto the circuit board 4 by a dispenser 502 or the like as shown in Fig. 43A and Figs. 44A and 44D and thereafter solidified into a semi-solid state, or the state of the so-called B stage. Subsequently, the IC chip 1 is mounted on the board 4 similarly to the first or seventeenth embodiment.

In detail, as shown in Fig. 43A, the thermosetting adhesive 306b in the liquid form is applied or printed or transferred onto the circuit board 4 by the dispenser 502 or the like, which can be moved in two directions orthogonal on the board surface and the discharge rate of which is controlled with an air pressure as shown in Fig. 44A. Next, the adhesive is solidified into a semi-solid state, or the state of the so-called B

stage as shown in Fig. 43C through uniforming with heat and pressure applied by a tool 78 that has a built-in heater 78a as shown in Fig. 43B.

Otherwise, in the case where the thermosetting adhesive 306b in the liquid form has a low viscosity, the liquid thermosetting adhesive 306b is applied to a specified position on the board 4 by means of the dispenser 502 as shown in Fig. 44A, and thereafter, the thermosetting adhesive 306b naturally spreads on the board since its viscosity is low and enters into a state as shown in Fig. 44B. Subsequently, by putting the board 4 into a furnace 503 by means of a conveying unit 505 like a conveyer as shown in Fig. 44C and hardening the liquid-form thermosetting adhesive 306b of the applied insulating resin by a heater 504 of the furnace 503, the adhesive is solidified into a semi-solid state, i.e., the state of the so-called B stage.

In the case where the thermosetting adhesive 306b in the liquid form has a high viscosity, the liquid thermosetting adhesive 306b is applied to a specified position on the board 4 by means of the dispenser 502 as shown in Fig. 44D, and thereafter, the thermosetting adhesive 306b is spread flat by a squeegee 506 as shown in Figs. 44E and 44F since the adhesive does not naturally spread on the board due to the high viscosity of the

thermosetting adhesive 306b. Subsequently, by putting the board 4 into the furnace 503 by means of the conveying unit 505 like a conveyer as shown in Fig. 44C and hardening the liquid thermosetting adhesive 306b of the applied insulating resin by the heater 504 of the furnace 503, the adhesive is solidified into the semi-solid state, i.e., the state of the so-called B stage.

As described above, although there is a difference depending on the characteristics of the thermosetting resin in the thermosetting adhesive 306b when the thermosetting adhesive 306b is semi-solidified, pressurization is effected at a temperature of 80 to 130°C, which is 30 to 80% of the glass transition point of the thermosetting resin. The pressurization is normally performed at a temperature of about 30% of the glass transition point of the thermosetting resin. The reason why the temperature is 30 to 80% of the glass transition point of the thermosetting resin is that a further range for reaction can still sufficiently be left in the subsequent processes within the range of 80 to 130°C according to the graph of the heating temperature of the resin sheet with respect to the reaction rate of Fig. 54. In other words, the reaction rate of the insulating resin, or for example, the epoxy resin can be restrained to about 10 to 50%, also depending on time, within the temperature